

# Health Advisory:

## Influenza-Associated Pediatric Mortality and *Staphylococcus aureus* Co-Infection

February 11, 2008

This document will be updated as new information becomes available. The current version can always be viewed at <http://www.dhss.mo.gov/>.

The Missouri Department of Health & Senior Services (DHSS) is now using 4 types of documents to provide important information to medical and public health professionals, and to other interested persons:

**Health Alerts** convey information of the highest level of importance which warrants immediate action or attention from Missouri health providers, emergency responders, public health agencies, and/or the public.

**Health Advisories** provide important information for a specific incident or situation, including that impacting neighboring states; may not require immediate action.

**Health Guidances** contain comprehensive information pertaining to a particular disease or condition, and include recommendations, guidelines, etc. endorsed by DHSS.

**Health Updates** provide new or updated information on an incident or situation; can also provide information to update a previously sent Health Alert, Health Advisory, or Health Guidance; unlikely to require immediate action.

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Health Advisory  
February 11, 2008

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**SUBJECT: Influenza-Associated Pediatric Mortality and *Staphylococcus aureus* Co-Infection**

This Health Advisory contains updated information about influenza and bacterial co-infections in children, and provides interim recommendations from the Centers for Disease Control and Prevention (CDC). The Missouri Department of Health and Senior Services' (DHSS') Communicable Disease Reporting Rule requires reporting of laboratory-confirmed cases of influenza, including all cases of influenza-associated pediatric mortality.

### Background:

Since 2004, the Influenza-Associated Pediatric Mortality Surveillance System, part of the Nationally Notifiable Disease Surveillance System, has collected information on deaths among children due to laboratory-confirmed influenza, including the presence of other medical conditions and bacterial infections at the time of death. From October 1, 2006 through September 30, 2007, 73 deaths from influenza in children were reported to CDC from 39 state health departments and two city health departments. Data on the presence (or absence) of bacterial co-infections were recorded for 69 of these cases; 30 (44%) had a bacterial co-infection, and 22 (73%) of these 30 were infected with *Staphylococcus aureus*.

The number of pediatric influenza-associated deaths reported during 2006-07 was moderately higher than the number reported during the two previous surveillance years; the number of these deaths in which pneumonia or bacteremia due to *S. aureus* was noted represents a five-fold increase. Only one *S. aureus* co-infection among 47 influenza deaths was identified in 2004-2005, and 3 co-infections among 46 deaths were identified in 2005-2006. Of the 22 influenza deaths reported with *S. aureus* in 2006-2007, 15 children had infections with methicillin-resistant *S. aureus* (MRSA).

The median age of children with *S. aureus* co-infection was older than children without *S. aureus* co-infection (10 years versus 5 years,  $p < .01$ ) and children with co-infection were more likely to have pneumonia and Acute Respiratory Distress Syndrome (ARDS). Influenza strains isolated from these children were not different from common strains circulating in the community, and the MRSA strains have been similar to those associated with MRSA skin infection outbreaks in the United States.

### CDC Recommendations:

Health care providers should test persons hospitalized with respiratory illness for influenza, including those with suspected community-acquired pneumonia. Health care providers should be alerted to the possibility of bacterial co-infection among children with influenza, and request bacterial cultures if children are severely ill or when community-acquired pneumonia is suspected. Health care providers should be aware of the prevalence of methicillin-resistant *S. aureus* strains in their communities when choosing empiric therapy for patients with suspected influenza-related pneumonia. Clinicians, health care providers, and medical

## Reporting:

DHSS' Communicable Disease Reporting Rule (19 CSR 20-20.020 and 19 CSR 20-20.080) requires reporting of laboratory-confirmed cases of influenza, including all cases of influenza-associated pediatric mortality, to the local public health agency, or to DHSS at 573/751-6113 or 800-392-0272. If an influenza-associated death is complicated by *S. aureus* infection, any available *S. aureus* isolates should be forwarded to the Missouri State Public Health Laboratory, which will then forward the specimen to CDC for further testing and characterization.

LPHAs should enter data from cases of influenza-associated pediatric mortality into the Missouri Health Surveillance Information System (MOHSIS) as an individual case, and not report this data using the case summary influenza reporting.

For additional information see the websites listed below:

Influenza (DHSS)

<http://www.dhss.mo.gov/Influenza/>

Seasonal (Non-Pandemic) Influenza (DHSS)

<http://www.dhss.mo.gov/PandemicInfluenza/MedSeasonalFlu.html>

Methicillin-Resistant *Staphylococcus aureus* (DHSS)

<http://www.dhss.mo.gov/MRSA/index.html>

Questions should be directed to DHSS' Bureau of Communicable Disease Control and Prevention at 573/751-6113, 866/628-9891, or 800-392-0272.